Test Your Skills - 02
Deadline - 2/17

Answer these exercises, in complete mathematical sentences and using mathematical notation properly. You are to work on these exercises individually, without collaboration. You may consult your book and myself, but **not the math lab** or other resources. To earn extra credit, stop into my office hours (or make an appointment) and present your solutions. Partial credit will be given for any earnest attempt.

Exercise 1. *Evaluate*

$$\int \left(\sin(\ln(x)) \right) dx.$$

Exercise 2. *Find the volume obtained by rotating the region bounded by*

$$y = \sin^2(x).$$
$$y = 0,$$
$$x = 0, \ and$$
$$x = \pi,$$

about the x-axis.

Exercise 3. *Evaluate*

$$\int \left(\frac{1}{x^4 \sqrt{x^2 - 2}} \right) dx.$$

Exercise 4. *Evaluate*

$$\int \left(x \tan^{-1}(x) \right) dx.$$